line 33, delete "reference" and insert therefor --Reference--;

Page 17, line 2, delete "genoma" and insert therefor -- genome --;

line 3, after "Finally" insert -- , --;

line 6, after "Particularly" insert -- , --;

line 10, after "defined" delete ", of a";

Page 20, line 3, after "virus" insert -- , which has been designated Human Immunodeficiency Virus Type 1 (HIV-1) --.

IN THE CLAIMS:

Please cancel claims 1-3.

Please add the following claims:

--~~13.~~ A cloned DNA sequence of Human Immunodeficiency Virus Type 1 (HIV-1), wherein the DNA is free of particles of said virus and the DNA contains at least a portion of the sequence:

```
                                                                  240
                                                                  CTAGC

      250         260         270         280         290         300
GGAGGCTAGA AGGAGAGAGA TGGGTGCGAG AGCGTCAGTA TTAAGCGGGG GAGAATTAGA

      310         320         330         340         350         360
TCGATGGGAA AAAATTCGGT TAAGGCCAGG GGGAAAGAAA AAATATAAAT TAAAACATAT
```

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```
       370         380         390         400         410         420
AGTATGGGCA AGCAGGGAGC TAGAACGATT CGCTGTTAAT CCTGGCCTGT TAGAAACATC

       430         440         450         460         470         480
AGAAGGCTGT AGACAAATAC TGGGACAGCT ACAACCATCC CTTCAGACAG GATCAGAAGA

       490         500         510         520         530         540
ACTTAGATCA TTATATAATA CAGTAGCAAC CCTCTATTGT GTGCATCAAA GGATAGAGAT

       550         560         570         580         590         600
AAAAGACACC AAGGAAGCTT TAGACAAGAT AGAGGAAGAG CAAAACAAAA GTAAGAAAAA

       610         620         630         640         650         660
AGCACAGCAA GCAGCAGCTG ACACAGGACA CAGCAGCCAG GTCAGCCAAA ATTACCCTAT

       670         680         690         700         710         720
AGTGCAGAAC ATCCAGGGGC AAATGGTACA TCAGGCCATA TCACCTAGAA CTTTAAATGC

       730         740         750         760         770         780
ATGGGTAAAA GTAGTAGAAG AGAAGGCTTT CAGCCCAGAA GTGATACCCA TGTTTTCAGC

       790         800         810         820         830         840
ATTATCAGAA GGAGCCACCC CACAAGATTT AAACACCATG CTAAACACAG TGGGGGGACA

       850         860         870         880         890         900
TCAAGCAGCC ATGCAAATGT TAAAAGAGAC CATCAATGAG GAAGCTGCAG AATGGGATAG

       910         920         930         940         950         960
AGTGCATCCA GTGCATGCAG GGCCTATTGC ACCAGGCCAG ATGAGAGAAC CAAGGGGAAG

       970         980         990        1000        1010        1020
TGACATAGCA GGAACTACTA GTACCCTTCA GGAACAAATA GGATGGATGA CAAATAATCC

      1030        1040        1050        1060        1070        1080
ACCTATCCCA GTAGGAGAAA TTTATAAAAG ATGGATAATC CTGGGATTAA ATAAAATAGT

      1090        1100        1110        1120        1130        1140
```

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```
AATAATGTAT AGCCCTACCA GCATTCTGGA CATAAGACAA GGACCAAAAG AACCCTTTAG

      1150        1160        1170        1180        1190        1200
AGACTATGTA GACCGGTTCT ATAAAACTCT AAGAGCCGAG CAAGCTTCAC AGGAGGTAAA

      1210        1220        1230        1240        1250        1260
AAATTGGATG ACAGAAACCT TGTTGGTCCA AAATGCGAAC CCAGATTGTA AGACTATTTT

      1270        1280        1290        1300        1310        1320
AAAAGCATTG GGACCAGCAG CTACACTAGA AGAAATGATG ACAGCATGTC AGGGAGTGGC

      1330        1340        1350        1360        1370        1380
AGGACCCGGC CATAAGGCAA GAGTTTTGGC TGAAGCAATG AGCCAAGTAA CAAATTCAGC

      1390        1400        1410        1420        1430        1440
TACCATAATG ATGCAAAGAG GCAATTTTAG GAACCAAAGA AAGATTGTTA AGTGTTTCAA

      1450        1460        1470        1480        1490        1500
TTGTGGCAAA GAAGGGCACA TAGCCAGAAA TTGCAGGGCC CCTAGGAAAA AGGGCTGTTG

      1510        1520        1530        1540        1550        1560
GAAATGTGGA AAGGAAGGAC ACCAAATGAA AGATTGTACT GAGAGACAGG CTAATTTTTT

      1570        1580        1590        1600        1610        1620
AGGGAAGATC TGGCCTTCCT ACAAGGGAAG GCCAGGGAAT TTTCTTCAGA GCAGACCAGA

      1630        1640        1650        1660        1670        1680
GCCAACAGCC CCACCAGAAG AGAGCTTCAG GTCTGGGGTA GAGACAACAA CTCCCTCTCA

      1690        1700        1710        1720        1730        1740
GAAGCAGGAG CCGATAGACA AGGAACTGTA TCCTTTAACT TCCCTCAGAT CACTCTTTGG

      1750
CAACGACCCC TCGTCACAA
```

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~~14.~~ 12. A DNA sequence as claimed in claim ~~13~~ 11, wherein the DNA has the sequence:

```
                260         270         280         290         300
                  A TGGGTGCGAG AGCGTCAGTA TTAAGCGGGG GAGAATTAGA

        310         320         330         340         350         360
TCGATGGGAA AAAATTCGGT TAAGGCCAGG GGGAAAGAAA AAATATAAAT TAAAACATAT

        370         380         390         400         410         420
AGTATGGGCA AGCAGGGAGC TAGAACGATT CGCTGTTAAT CCTGGCCTGT TAGAAACATC

        430         440         450         460         470         480
AGAAGGCTGT AGACAAATAC TGGGACAGCT ACAACCATCC CTTCAGACAG GATCAGAAGA

        490         500         510         520         530         540
ACTTAGATCA TTATATAATA CAGTAGCAAC CCTCTATTGT GTGCATCAAA GGATAGAGAT

        550         560         570         580         590         600
AAAAGACACC AAGGAAGCTT TAGACAAGAT AGAGGAAGAG CAAAACAAAA GTAAGAAAAA

        610         620         630         640         650         660
AGCACAGCAA GCAGCAGCTG ACACAGGACA CAGCAGGCAG GTCAGCCAAA ATTACCCTAT

        670         680         690         700         710         720
AGTGCAGAAC ATCCAGGGGC AAATGGTACA TCAGGCCATA TCACCTAGAA CTTTAAATGC

        730         740         750         760         770         780
ATGGGTAAAA GTAGTAGAAG AGAAGGCTTT CAGCCCAGAA GTGATACCCA TGTTTTCAGC

        790         800         810         820         830         840
ATTATCAGAA GGAGCCACCC CACAAGATTT AAACACCATG CTAAACACAG TGGGGGGACA

        850         860         870         880         890         900
TCAAGCAGCC ATGCAAATGT TAAAAGAGAC CATCAATGAG GAAGCTGCAG AATGGGATAG

        910         920         930         940         950         960
AGTGCATCCA GTGCATGCAG GGCCTATTGC ACCAGGCCAG ATGAGAGAAC CAAGGGGAAG

        970         980         990        1000        1010        1020
TGACATAGCA GGAACTACTA GTACCCTTCA GGAACAAATA GGATGGATGA CAAATAATCC

       1030        1040        1050        1060        1070        1080
ACCTATCCCA GTAGGAGAAA TTTATAAAAG ATGGATAATC CTGGGATTAA ATAAAATAGT

       1090        1100        1110        1120        1130        1140
```

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```
AAGAATGTAT AGCCCTACCA GCATTCTGGA CATAAGACAA GGACCAAAAG AACCCTTTAG

      1150        1160        1170        1180        1190        1200
AGACTATGTA GACCGGTTCT ATAAAACTCT AAGAGCCGAG CAAGCTTCAC AGGAGGTAAA

      1210        1220        1230        1240        1250        1260
AAATTGGATG ACAGAAACCT TGTTGGTCCA AAATGCGAAC CCAGATTGTA AGACTATTTT

      1270        1280        1290        1300        1310        1320
AAAAGCATTG GGACCAGCAG CTACACTAGA AGAAATGATG ACAGCATGTC AGGGAGTGGG

      1330        1340        1350        1360        1370        1380
AGGACCCGGC CATAAGGCAA GAGTTTTGGC TGAAGCAATG AGCCAAGTAA CAAATTCAGC

      1390        1400        1410        1420        1430        1440
TACCATAATG ATGCAAAGAG GCAATTTTAG GAACCAAAGA AAGATTGTTA AGTGTTTCAA

      1450        1460        1470        1480        1490        1500
TTGTGGCAAA GAAGGGCACA TAGCCAGAAA TTGCAGGGCC CCTAGGAAAA AGGGCTGTTG

      1510        1520        1530        1540        1550        1560
GAAATGTGGA AAGGAAGGAC ACCAAATGAA AGATTGTACT GAGAGACAGG CTAATTTTTT

      1570        1580        1590        1600        1610        1620
AGGGAAGATC TGGCCTTCCT ACAAGGGAAG GCCAGGGAAT TTTCTTCAGA GCAGACCAGA

      1630        1640        1650        1660        1670        1680
GCCAACAGCC CCACCAGAAG AGAGCTTCAG GTCTGGGGTA GAGACAACAA CTCCCTCTCA

      1690        1700        1710        1720        1730        1740
GAAGCAGGAG CCGATAGACA AGGAACTGTA TCCTTTAACT TCCCTCAGAT CACTCTTTGG

      1750
CAACGACCCC TCGTCACAA
```

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13 ~~15~~. A DNA sequence as claimed in claim 11 ~~13~~, wherein the DNA comprises the nucleotides:

```
                670                680                690
AGTGCAGAAC ATCCAGGGGC AAATGGTACA T
```

and said DNA codes for a peptide having a relative molecular weight of about 25,000 daltons.

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14 ~~16~~. A DNA sequence as claimed in claim 11 ~~13~~, wherein the DNA has the sequence:

```
                                                          300
                                                          TTAGA

      310         320         330         340         350
TCGATCGGAA AAAATTCGGT TAAGGCCAGG GGCAAAGAAA AAATATAAAT TAAAACAT.
```

15 ~~17~~. A DNA sequence as claimed in claim 11 ~~13~~, wherein the DNA has the sequence:

GCA AGC AGG GAG CTA GAA CGA TTC GCT GTT.

16 ~~18~~. A DNA sequence as claimed in claim 11 ~~13~~, wherein the DNA has the sequence:

GGC CTG TTA GAA ACA TCA GAA GGC TGT AGA CAA ATA CTG GGA CAG

CTA CAA CCA CTT CAG ACA GGA TCA GAA GAA CTT AGA TCA TTA TAT.

17 ~~19~~. A DNA sequence as claimed in claim 11 ~~13~~, wherein the DNA has the sequence:

```
      530         540         550         560         570
GTGCATCAAA  GGATAGAGAT  AAAAGACACC  AAGGAAGCTT  TAGACAAGAT

      580         590         600         610         620
AGAGGAAGAG  CAAAACAAAA  GTAAGAAAAA  AGCACAGCAA  GCAGCAGCTG

      630         640         650         660         670
ACACAGGACA  CAGCAGCCAG  GTCAGCCAAA  ATTACCCTAT  AGTGCAGAAC

      680         690         700         710
ATCCAGGGGC  AAATGGTACA  TCAGGCCATA  TCACCTAGAA  CTTTAAAT.
```

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~~20~~ 18. A DNA sequence as claimed in claim ~~13~~ 11, wherein the DNA has the sequence:

GTA GTA GAA GAG AAG GCT TTC AGC.

~~21~~ 19. A DNA sequence as claimed in claim ~~13~~ 11, wherein the DNA has the sequence:

GGA GCC ACC CCA CAA GAT TTA AAC ACC ATG CTA.

~~22~~ 20. A DNA sequence as claimed in claim ~~13~~ 11, wherein the DNA has the sequence:

```
      860         870         880         890         900
     ATGT  TAAAAGAGAC  CATCAATGAG  GAAGCTGCAG  AATGGGATAG

      910
AGTGCATCCA  GTGCATGCA.
```

~~23~~ 21. A DNA sequence as claimed in claim ~~13~~ 11, wherein the DNA has the sequence:

GGC CAG ATG AGA GAA CCA AGG GGA AGT.

~~24~~ 22. A DNA sequence as claimed in claim ~~13~~ 11, wherein the DNA has the sequence:

```
      980         990        1000        1010        1020
   ACTACTA  GTACCCTTCA  GGAACAAATA GGATGGATGA  CAAATAATCC

     1030        1040        1050
ACCTATCCCA  GTAGGAGAAA  TTTATAAAAG  A.
```

~~25~~ 23. A DNA sequence as claimed in claim ~~13~~ 11, wherein the DNA has the sequence:

```
     1130        1140        1150        1160        1170
GGACCAAAAG  AACCCTTTAG  AGACTATGTA  GACCGGTTGT  ATAAAACTCT

     1180        1190        1200        1210        1220
AAGAGCCGAG  CAAGCTTCAC  AGGAGGTAAA  AAATTGGATG  ACAGAAACCT

     1230        1240        1250
TGTTGGTCCA  AAATGCGAAC  CCAGATTGTA  AG.
```

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24
~~26~~. A DNA sequence as claimed in claim 11 ~~12~~, wherein the DNA has the sequence:

GGA GTG GGA GGA CCC GGC CAT AAG GCA AGA.

25
~~27~~. A DNA sequence as claimed in claim 11 ~~13~~, wherein the DNA has the sequence:

```
1390        1400        1410        1420
 ATG  ATGCAAAGAG  GCAATTTTAG  GAACCAAAGA  AAGATTGTT.
```

26
~~28~~. A DNA sequence as claimed in claim 11 ~~13~~, wherein the DNA has the sequence:

```
1460        1470        1480        1490        1500
GGGCACA  TAGCCAGAAA  TTGCAGGGCC  CCTAGGAAAA  AGGGCTGTTG

1510        1520        1530        1540        1550
GAAATGTGGA  AAGGAAGGAC  ACCAAATGAA  AGATTGTACT  GAGAGACAGG  CTA.
```

27
~~29~~. A DNA sequence as claimed in claim 11 ~~13~~, wherein the DNA has the sequence:

```
1570        1580        1590        1600        1610
 ATC  TGGCCTTCCT  ACAAGGGAAG  GCCAGGGAAT  TTTCTTCAGA

1620        1630        1640        1650        1660
GCAGACCAGA  GCCAACAGCC  CCACCAGAAG  AGAGCTTCAG  GTCTGGGGTA

1670        1680        1690        1700        1710
GAGACAACAA  CTCCCTCTCA  GAAGCAGGAG  CCGATAGACA  AGGAACTGTA T.
```

28
~~30~~. A DNA sequence as claimed in claim 11 ~~13~~, wherein the DNA has the sequence:

CTC TTT GGC AAC GAC CCC TCG.

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29
~~31~~. A cloned DNA sequence of Human Immunodeficiency Virus Type 1 (HIV-1), wherein the DNA is free of particles of said virus and the DNA has the sequence:

```
                                                                  1560
                                                                  TTTTTT

      1570        1580        1590        1600        1610        1620
AGGGAAGATC TGGCCTTCCT ACAAGGGAAG GCCAGGGAAT TTTCTTCAGA GCAGACCAGA

      1630        1640        1650        1660        1670        1680
GCCAACAGCC CCACCAGAAG AGAGCTTCAG GTCTGGGGTA GAGACAACAA CTCCCTCTCA

      1690        1700        1710        1720        1730        1740
GAAGCAGGAG CCGATAGACA AGGAACTGTA TCCTTTAACT TCCCTCAGAT CACTCTTTGG

      1750        1760        1770        1780        1790        1800
CAACGACCCC TCGTCACAAT AAAGATAGGG GGGCAACTAA AGGAAGCTCT ATTAGATACA

      1810        1820        1830        1840        1850        1860
GGAGCAGATG ATACAGTATT AGAAGAAATG AGTTTGCCAG GAAGATGGAA ACCAAAAATC

      1870        1880        1890        1900        1910        1920
ATAGGGGGAA TTGGAGGTTT TATCAAAGTA AGACAGTATG ATCAGATACT CATAGAAATC

      1930        1940        1950        1960        1970        1980
TGTGGACATA AAGCTATAGG TACAGTATTA GTAGGACCTA CACCTGTCAA CATAATTGGA

      1990        2000        2010        2020        2030        2040
AGAAATCTGT TGACTCAGAT TGGTTGCACT TTAAATTTTC CCATTAGTCC TATTGAAACT

      2050        2060        2070        2080        2090        2100
GTACCAGTAA AATTAAAGCC AGGAATGGAT GGCCCAAAAG TTAAACAATG GCCATTGACA

      2110        2120        2130        2140        2150        2160
GAAGAAAAAA TAAAAGCATT AGTAGAAATT TGTACAGAAA TGGAAAAGGA AGGGAAAATT

      2170        2180        2190        2200        2210        2220
TCAAAAATTG GGCCTGAAAA TCCATACAAT ACTCCAGTAT TTGCCATAAA GAAAAAAGAC

      2230        2240        2250        2260        2270        2280
AGTACTAAAT GGAGAAAATT AGTAGATTTC AGAGAACTTA ATAAGAGAAC TCAAGACTTC

      2290        2300        2310        2320        2330        2340
TGGGAAGTTC AATTAGGAAT ACCACATCCC GCAGGGTTAA AAAAGAAAAA ATCAGTAACA

      2350        2360        2370        2380        2390        2400
```

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GTGCTGGATG TGGGTGATGC ATATTTTTCA GTTCCCTTAG ATGAAGACTT CAGGAAGTAT

2410 2420 2430 2440 2450 2460
ACTGCATTTA CCATACCTAG TATAAACAAT GAGACACCAG GGATTAGATA TCAGTACAAT

2470 2480 2490 2500 2510 2520
GTGCTTCCAC AGGGATGGAA AGGATCACCA GCAATATTCC AAAGTAGCAT GACAAAAATC

2530 2540 2550 2560 2570 2580
TTAGAGCCTT TTAGAAAACA AAATCCAGAC ATAGTTATCT ATCAATACAT GGATGATTTG

2590 2600 2610 2620 2630 2640
TATGTAGGAT CTGACTTAGA AATAGGGCAG CATAGAACAA AAATAGAGGA GCTGAGACAA

2650 2660 2670 2680 2690 2700
CATCTGTTGA GGTGGGGACT TACCACACCA GACAAAAAAC ATCAGAAAGA ACCTCCATTC

2710 2720 2730 2740 2750 2760
CTTTGGATGG GTTATGAACT CCATCCTGAT AAATGGACAG TACAGCCTAT AGTGCTGCCA

2770 2780 2790 2800 2810 2820
GAAAAAGACA GCTGGACTGT CAATGACATA CAGAAGTTAG TGGGAAAATT GAATTGGGCA

2830 2840 2850 2860 2870 2880
AGTCAGATTT ACCCAGGGAT TAAAGTAAGG CAATTATGTA AACTCCTTAG AGGAACCAAA

2890 2900 2910 2920 2930 2940
GCACTAACAG AAGTAATACC ACTAACAGAA GAAGCAGAGC TAGAACTGGC AGAAAACAGA

2950 2960 2970 2980 2990 3000
GAGATTCTAA AAGAACCAGT ACATGGAGTG TATTATGACC CATCAAAAGA CTTAATAGCA

3010 3020 3030 3040 3050 3060
GAAATACAGA AGCAGGGGCA AGGCCAATGG ACATATCAAA TTTATCAAGA GCCATTTAAA

3070 3080 3090 3100 3110 3120
AATCTGAAAA CAGGAAAATA TGCAAGAACG AGGGGTGCCC ACACTAATGA TGTAAAACAA

3130 3140 3150 3160 3170 3180
TTAACAGAGG CAGTGCAAAA AATAACCACA GAAAGCATAG TAATATGGGG AAAGACTCCT

3190 3200 3210 3220 3230 3240
AAATTTAAAC TACCCATACA AAAGGAAACA TGGGAAACAT GGTGGACAGA GTATTGGCAA

3250 3260 3270 3280 3290 3300
GCCACCTGGA TTCCTGAGTG GGAGTTTGTC AATACCCCTC CTTTAGTGAA ATTATGGTAC

3310 3320 3330 3340 3350 3360
CAGTTAGAGA AAGAACCCAT AGTAGGAGCA GAAACGTTCT ATGTAGATGG GGCAGCTAGC

3370 3380 3390 3400 3410 3420
AGGGAGACTA AATTAGGAAA AGCAGGATAT GTTACTAATA GAGGAAGACA AAAAGTTGTC

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```
      3430        3440        3450        3460        3470        3480
ACCCTAACTG ACACAACAAA TCAGAAGACT GAGTTACAAG CAATTCATCT AGCTTTGCAG

      3490        3500        3510        3520        3530        3540
GATTCGGGAT TAGAAGTAAA TATAGTAACA GACTCACAAT ATGCATTAGG AATCATTCAA

      3550        3560        3570        3580        3590        3600
GCACAACCAG ATAAAAGTGA ATCAGAGTTA GTCAATCAAA TAATAGAGCA GTTAATAAAA

      3610        3620        3630        3640        3650        3660
AAG..AAAA.. TCTATCTGGC ATGGGTACCA GCACACAAAG GAATTGGAGG AAATGAACAA

      3670        3680        3690        3700        3710        3720
GTAGATAAAT TAGTCAGTGC TGGAATCAGG AAAGTACTAT TTTTAGATGG AATAGATAAG

      3730        3740        3750        3760        3770        3780
GCCCAAGATG AACATGAGAA ATATCACAGT AATTGGAGAG CAATGGCTAG TGATTTTAAC

      3790        3800        3810        3820        3830        3840
CTGCCACCTG TAGTAGCAAA AGAAATAGTA GCCAGCTGTG ATAAATGTCA GCTAAAAGGA

      3850        3860        3870        3880        3890        3900
GAAGCCATGC ATGGACAAGT AGACTGTAGT CCAGGAATAT GGCAACTAGA TTGTACACAT

      3910        3920        3930        3940        3950        3960
TTAGAAGGAA AAGTTATCCT GGTAGCAGTT CATGTAGCCA GTGGATATAT AGAAGCAGAA

      3970        3980        3990        4000        4010        4020
GTTATTCCAG CAGAAACAGG GCAGGAAACA GCATACTTTC TTTTAAAATT AGCAGGAAGA

      4030        4040        4050        4060        4070        4080
TGGCCAGTAA AAACAATACA TACAGACAAT GGCAGCAATT TCACCAGTAC TACGGTTAAG

      4090        4100        4110        4120        4130        4140
GCCGCCTGTT GGTGGGCGGG AATCAAGCAG GAATTTGGAA TTCCCTACAA TCCCCAAAGT

      4150        4160        4170        4180        4190        4200
CAAGGAGTAG TAGAATCTAT GAATAAAGAA TTAAAGAAAA TTATAGGCCA GGTAAGAGAT

      4210        4220        4230        4240        4250        4260
CAGGCTGAAC ATCTTAAGAC AGCAGTACAA ATGGCAGTAT TCATCCACAA TTTTAAAAGA
```

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```
      4270        4280        4290        4300        4310        4320
AAAGGGGGGA TTGGGGGGTA CAGTGCAGGG GAAAGAATAG TAGACATAAT AGCAACAGAC

      4330        4340        4350        4360        4370        4380
ATACAAACTA AAGAATTACA AAAACAAATT ACAAAAATTC AAAATTTTCG GGTTTATTAC

      4390        4400        4410        4420        4430        4440
AGGGACAGCA GAGATCCACT TTGGAAAGGA CCAGCAAAGC TCCTCTGGAA AGGTGAAGGG

      4450        4460        4470        4480        4490        4500
GCAGTAGTAA TACAAGATAA TAGTGACATA AAAGTAGTGC CAAGAAGAAA AGCAAAGATC

      4510        4520        4530        4540        4550        4560
ATTAGGGATT ATGGAAAACA GATGGCAGGT GATGATTGTG TGGCAAGTAG ACAGGATGAG

      4570        4580        4590        4600        4610        4620
GATTAGAACA TGGAAAAGTT TAGTAAAACA CCATATGTAT GTTTCAGGGA AAGCTAGGGG

      4630        4640        4650        4660        4670        4680
ATGGTTTTAT AGACATCACT ATGAAAGCCC TCATCCAAGA ATAAGTTCAG AAGTACACAT

      4690        4700        4710        4720        4730        4740
CCCACTAGGG GATGCTAGAT TGGTAATAAC AACATATTGG GGTCTGCATA CAGGAGAAAG

      4750        4760        4770        4780        4790        4800
AGACTGGCAT CTGGGTCAGG GAGTCTCCAT AGAATGGAGG AAAAAGAGAT ATAGCACACA

      4810        4820        4830        4840        4850        4860
AGTAGACCCT GAACTAGCAG ACCAACTAAT TCATCTGTAT TACTTTGACT GTTTTTCAGA

      4870        4880        4890        4900        4910        4920
```

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CTCTGCTATA AGAAAGCCCT TATTAGGACA TATAGTTAGC CCTAGGTGTG AATATCAAGC

4930 4940 4950 4960 4970 4980
AGGACATAAC AAGGTAGGAT CTCTACAATA CTTGGCACTA GCAGCATTAA TAACACCAAA

4990 5000 5010 5020 5030 5040
AAAGATAAAG CCACCTTTGC CTAGTGTTAC GAAACTGACA GAGGATAGAT GGAACAAGCC

5050 5060 5070 5080
CCAGAAGACC AAGGGCCACA GAGGGAGCCA CACAATGAAT GGACAC

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~~32.~~ 30 A cloned DNA sequence of Human Immunodeficiency Virus Type 1 (HIV-1), wherein the DNA is free of particles of said virus and the DNA ~~contains at least a portion of~~ has the sequence:

```
                                    5670        5680        5690        5700
                                       A AAGAGCAGAA GACAGTGGCA ATGAGAGTGA

      5710        5720        5730        5740        5750        5760
AGGAGAAATA TCAGCACTTG TGGAGATGGG GGTGGAAATG GGGCACCATG CTCCTTGGGA

      5770        5780        5790        5800        5810        5820
TATTGATGAT CTGTAGTGCT ACAGAAAAAT TGTGGGTCAC AGTCTATTAT GGGGTACCTG

      5830        5840        5850        5860        5870        5880
TGTGGAAGGA AGCAACCACC ACTCTATTTT GTGCATCAGA TGCTAAAGCA TATGATACAG

      5890        5900        5910        5920        5930        5940
AGGTACATAA TGTTTGGGCC ACACATGCCT GTGTACCCAC AGACCCCAAC CCACAAGAAG

      5950        5960        5970        5980        5990        6000
TAGTATTGGT AAATGTGACA GAAAATTTTA ACATGTGGAA AAATGACATG GTAGAACAGA

      6010        6020        6030        6040        6050        6060
TGCATGAGGA TATAATCAGT TTATGGGATC AAAGCCTAAA GCCATGTGTA AAATTAACCC

      6070        6080        6090        6100        6110        6120
CACTCTGTGT TAGTTTAAAG TGCACTGATT TGGGGAATGC TACTAATACC AATAGTAGTA

      6130        6140        6150        6160        6170        6180
ATACCAATAG TAGTAGCGGG GAAATGATGA TGGAGAAAGG AGAGATAAAA AACTGCTCTT

      6190        6200        6210        6220        6230        6240
TCAATATCAG CACAAGCATA AGAGGTAAGG TGCAGAAAGA ATATGCATTT TTTTATAAAC

      6250        6260        6270        6280        6290        6300
TTGATATAAT ACCAATAGAT AATGATACTA CCAGCTATAC GTTGACAAGT TGTAACACCT

      6310        6320        6330        6340        6350        6360
CAGTCATTAC ACAGGCCTGT CCAAAGGTAT CCTTTGAGCC AATTCCCATA CATTATTGTG

      6370        6380        6390        6400        6410        6420
CCCCGGCTGG TTTTGCGATT CTAAAATGTA ATAATAAGAC GTTCAATGGA ACAGGACCAT
```

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```
      6430        6440        6450        6460        6470        6480
GTACAAATGT CAGCACAGTA CAATGTACAC ATGGAATTAG GCCAGTAGTA TCAACTCAAC

      6490        6500        6510        6520        6530        6540
TGCTGTTGAA TGGCAGTCTA GCAGAAGAAG AGGTAGTAAT TAGATCTGCC AATTTCACAG

      6550        6560        6570        6580        6590        6600
ACAATGCTAA AACCATAATA GTACAGCTGA ACCAATCTGT AGAAATTAAT TGTACAAGAC

      6610        6620        6630        6640        6650        6660
CCAACAACAA TACAAGAAAA AGTATCCGTA TCCAGAGGGG ACCAGGGAGA GCATTTGTTA

      6670        6680        6690        6700        6710        6720
CAATAGGAAA AATAGGAAAT ATGAGACAAG CACATTGTAA CATTAGTAGA GCAAAATGCA

      6730        6740        6750        6760        6770        6780
ATGCCACTTT AAAACAGATA GCTAGCAAAT TAAGAGAACA ATTTGGAAAT AATAAAACAA

      6790        6800        6810        6820        6830        6840
TAATCTTTAA GCAATCCTCA GGAGGGGACC CAGAAATTGT AACGCACAGT TTTAATTGTG

      6850        6860        6870        6880        6890        6900
GAGGGGAATT TTTCTACTGT AATTCAACAC AACTGTTTAA TAGTACTTGG TTTAATAGTA

      6910        6920        6930        6940        6950        6960
CTTGGAGTAC TGAAGGGTCA AATAACACTG AAGGAAGTGA CACAATCACA CTCCCATGCA

      6970        6980        6990        7000        7010        7020
GAATAAAACA ATTTATAAAC ATGTGGCAGG AAGTAGGAAA AGCAATGTAT GCCCCTCCCA

      7030        7040        7050        7060        7070        7080
TCAGCGGACA AATTAGATGT TCATCAAATA TTACAGGGCT GCTATTAACA AGAGATGGTG

      7090        7100        7110        7120        7130        7140
GTAATAACAA CAATGGGTCC GAGATCTTCA GACCTGGAGG AGGAGATATG AGGGACAATT

      7150        7160        7170        7180        7190        7200
GGAGAAGTGA ATTATATAAA TATAAAGTAG TAAAAATTGA ACCATTAGGA GTAGCACCCA

      7210        7220        7230        7240        7250        7260
CCAAGGCAAA GAGAAGAGTG GTGCAGAGAG AAAAAAGAGC AGTGGGAATA GGAGCTTTGT

      7270        7280        7290        7300        7310        7320
TCCTTGGGTT CTTGGGAGCA GCAGGAAGCA CTATGGGCGC ACGGTCAATG ACGCTGACGG

      7330        7340        7350        7360        7370        7380
TACAGGCCAG ACAATTATTG TCTGGTATAG TGCAGCAGCA GAACAATTTG CTGAGGGCTA

      7390        7400        7410        7420        7430        7440
```

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```
TTGAGGCGCA ACAGCATCTG TTGCAACTCA CAGTCTGGGG CATCAAGCAG CTCCAGGCAA

      7450       7460       7470       7480       7490       7500
GAATCCTGGC TGTGGAAAGA TACCTAAAGG ATCAACAGCT CCTGGGGATT TGGGGTTGCT

      7510       7520       7530       7540       7550       7560
CTGGAAAACT CATTTGCACC ACTGCTGTGC CTTGGAATGC TAGTTGGAGT AATAAATCTC

      7570       7580       7590       7600       7610       7620
TGGAACAGAT TTGGAATAAC ATGACCTGGA TGCAGTGGGA CAGAGAAATT AACAATTACA

      7630       7640       7650       7660       7670       7680
CAAGCTTAAT ACATTCCTTA ATTGAAGAAT CGCAAAACCA GCAAGAAAAG AATGAACAAG

      7690       7700       7710       7720       7730       7740
AATTATTGGA ATTAGATAAA TGGGCAAGTT TGTGGAATTG GTTTAACATA ACAAATTGGC

      7750       7760       7770       7780       7790       7800
TGTGGTATAT AAAAATATTC ATAATGATAG TAGGAGGCTT GGTAGGTTTA AGAATAGTTT

      7810       7820       7830       7840       7850       7860
TTGCTGTACT TTCTATAGTG AATAGAGTTA GGCAGGGATA TTCACCATTA TCGTTTCAGA

      7870       7880       7890       7900       7910       7920
CCCACCTCCC AACCCCGAGG GGACCCGACA GGCCCGAAGG AATAGAAGAA GAAGGTGGAG

      7930       7940       7950       7960       7970       7980
AGAGAGACAG AGACAGATCC ATTCGATTAG TGAACGGATC CTTAGCACTT ATCTGGGACG

      7990       8000       8010       8020       8030       8040
ATCTGCGGAG CCTTGTGCCT CTTCAGCTAC CACCGCTTGA GAGACTTACT CTTGATTGTA

      8050       8060       8070       8080       8090       8100
ACGAGGATTG TGGAACTTCT GGGACGCAGG GGGTGGGAAG CCCTCAAATA TTGGTGGAAT

      8110       8120       8130
CTCCTACAGT ATTGGAGTCA GGAACTAAAG AA.
```

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~~33~~ 31. A DNA sequence as claimed in claim 32 30, wherein the DNA has the sequence:

```
                                                                5700
                                                          ATGAGAGTGA

      5710        5720        5730        5740        5750        5760
AGGAGAAATA TCAGCACTTG TGGAGATGGG GGTGGAAATG GGGCACCATG CTCCTTGGGA

      5770        5780        5790        5800        5810        5820
TATTGATGAT CTGTAGTGCT ACAGAAAAAT TGTGGGTCAC AGTCTATTAT GGGGTACCTG

      5830        5840        5850        5860        5870        5880
TGTGGAAGGA AGCAACCACC ACTCTATTTT GTGCATCAGA TGCTAAAGCA TATGATACAG

      5890        5900        5910        5920        5930        5940
AGGTACATAA TGTTTGGGCC ACACATGCCT GTGTACCCAC AGACCCCAAC CCACAAGAAG

      5950        5960        5970        5980        5990        6000
TAGTATTGGT AAATGTGACA GAAAATTTTA ACATGTGGAA AAATGACATG GTAGAACAGA

      6010        6020        6030        6040        6050        6060
TGCATGAGGA TATAATCAGT TTATGGGATC AAAGCCTAAA GCCATGTGTA AAATTAACCC

      6070        6080        6090        6100        6110        6120
CACTCTGTGT TAGTTTAAAG TGCACTGATT TGGGGAATGC TACTAATACC AATAGTAGTA

      6130        6140        6150        6160        6170        6180
ATACCAATAG TAGTAGCGGG GAAATGATGA TGGAGAAAGG AGAGATAAAA AACTGCTCTT

      6190        6200        6210        6220        6230        6240
TCAATATCAG CACAAGCATA AGAGGTAAGG TGCAGAAAGA ATATGCATTT TTTTATAAAC

      6250        6260        6270        6280        6290        6300
TTGATATAAT ACCAATAGAT AATGATACTA CCAGCTATAC GTTGACAAGT TGTAACACCT

      6310        6320        6330        6340        6350        6360
CAGTCATTAC ACAGGCCTGT CCAAAGGTAT CCTTTGAGCC AATTCCCATA CATTATTGTG

      6370        6380        6390        6400        6410        6420
CCCCGGCTGG TTTTGCGATT CTAAAATGTA ATAATAAGAC GTTCAATGGA ACAGGACCAT

      6430        6440        6450        6460        6470        6480
GTACAAATGT CAGCACAGTA CAATGTACAC ATGGAATTAG GCCAGTAGTA TCAACTCAAC

      6490        6500        6510        6520        6530        6540
TGCTGTTGAA TGGCAGTCTA GCAGAAGAAG AGGTAGTAAT TAGATCTGCC AATTTCACAG
```

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```
      6550        6560        6570        6580        6590        6600
ACAATGCTAA AACCATAATA GTACAGCTGA ACCAATCTGT AGAAATTAAT TGTACAAGAC

      6610        6620        6630        6640        6650        6660
CCAACAACAA TACAAGAAAA AGTATCCGTA TCCAGAGGGG ACCAGGGAGA GCATTTGTTA

      6670        6680        6690        6700        6710        6720
CAATAGGAAA AATAGGAAAT ATGAGACAAG CACATTGTAA CATTAGTAGA GCAAAATGGA

      6730        6740        6750        6760        6770        6780
ATGCCACTTT AAAACAGATA GCTAGCAAAT TAAGAGAACA ATTTGGAAAT AATAAAACAA

      6790        6800        6810        6820        6830        6840
TAATCTTTAA GCAATCCTCA GGAGGGGACC CAGAAATTGT AACGCACAGT TTTAATTGTG

      6850        6860        6870        6880        6890        6900
GAGGGGAATT TTTCTACTGT AATTCAACAC AACTGTTTAA TAGTACTTGG TTTAATAGTA

      6910        6920        6930        6940        6950        6960
CTTGGAGTAC TGAAGGGTCA AATAACACTG AAGGAAGTGA CACAATCACA CTCCCATGCA

      6970        6980        6990        7000        7010        7020
GAATAAAACA ATTTATAAAC ATGTGGCAGG AAGTAGGAAA AGCAATGTAT GCCCCTCCCA

      7030        7040        7050        7060        7070        7080
TCAGCGGACA AATTAGATGT TCATCAAATA TTACAGGGCT GCTATTAACA AGAGATGGTG

      7090        7100        7110        7120        7130        7140
GTAATAACAA CAATGGGTCC GAGATCTTCA GACCTGGAGG AGGAGATATG AGGGACAATT

      7150        7160        7170        7180        7190        7200
GGAGAAGTGA ATTATATAAA TATAAAGTAG TAAAAATTGA ACCATTAGGA GTAGCACCCA

      7210        7220        7230        7240        7250        7260
CCAAGGCAAA GAGAAGAGTG GTGCAGAGAG AAAAAAGAGC AGTGGGAATA GGAGCTTTGT

      7270        7280        7290        7300        7310        7320
TCCTTGGGTT CTTGGGAGCA GCAGGAAGCA CTATGGGCGC ACGGTCAATG ACGCTGACGG

      7330        7340        7350        7360        7370        7380
TACAGGCCAG ACAATTATTG TCTGGTATAG TGCAGCAGCA GAACAATTTG CTGAGGGCTA

      7390        7400        7410        7420        7430        7440
```

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```
TTGAGGCGCA ACAGCATCTG TTGCAACTCA CAGTCTGGGG CATCAAGCAG CTCCAGGCAA

      7450       7460       7470       7480       7490       7500
GAATCCTGGC TGTGGAAAGA TACCTAAAGG ATCAACAGCT CCTGGGGATT TGGGGTTGCT

      7510       7520       7530       7540       7550       7560
CTGGAAAACT CATTTGCACC ACTGCTGTGC CTTGGAATGC TAGTTGGAGT AATAAAATCTC

      7570       7580       7590       7600       7610       7620
TGGAACAGAT TTGGAATAAC ATGACCTGGA TGGAGTGGGA CAGAGAAATT AACAATTACA

      7630       7640       7650       7660       7670       7680
CAAGCTTAAT ACATTCCTTA ATTGAAGAAT CGCAAAACCA GCAAGAAAAG AATGAACAAG

      7690       7700       7710       7720       7730       7740
AATTATTGGA ATTAGATAAA TGGGCAAGTT TGTGGAATTG GTTTAACATA ACAAATTGGC

      7750       7760       7770       7780       7790       7800
TGTGGTATAT AAAAATATTC ATAATGATAG TAGGAGGCTT GGTAGGTTTA AGAATAGTTT

      7810       7820       7830       7840       7850       7860
TTGCTGTACT TTCTATAGTG AATAGAGTTA GGCAGGGATA TTCACCATTA TCGTTTCAGA

      7870       7880       7890       7900       7910       7920
CCCACCTCCC AACCCCGAGG GGACCCGACA GGCCCGAAGG AATAGAAGAA GAAGGTGGAG

      7930       7940       7950       7960       7970       7980
AGAGAGACAG AGACAGATCC ATTCGATTAG TGAACGGATC CTTAGCACTT ATCTGGGACG

      7990       8000       8010       8020       8030       8040
ATCTGCGGAG CCTTGTGCCT CTTCAGCTAC CACCGCTTGA GAGACTTACT CTTGATTGTA

      8050       8060       8070       8080       8090       8100
ACGAGGATTG TGGAACTTCT GGGACGCAGG GGGTGGGAAG CCCTCAAATA TTGGTGGAAT

      8110       8120       8130
CTCCTACAGT ATTGGAGTCA GGAACTAAAG AA.
```

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~~34~~ 32. A DNA sequence as claimed in claim ~~32~~ 30, wherein the DNA contains less than 750 nucleotides and at least one nucleotide sequence selected from the group consisting of:

(A) AAT GTG ACA;

(B) AAT GCT ACT;

(C) AAT AGT AGT;

(D) AAC TGC TCT;

(E) AAT ATC AGC;

(F) AAT GAT ACT;

(G) AAC ACC TCA;

(H) AAT AAG ACG;

(I) AAT GGA ACA;

(J) AAT GTC AGC;

(K) AAT GGC AGT;

(L) AAT TTC ACA;

(M) AAC CAA TCT;

(N) AAT TGT ACA;

(O) AAC AAT ACA;

(P) AAC ATT AGT;

(Q) AAT GCC ACT;

(R) AAT AAA ACA;

(S) AAT TCA ACA;

(T) AAT AGT ACT;

(U) AAT AGT ACT;

(V) AAT AGT ACT;

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(W) AAT AAC ACT;

(X) AAT ATT ACA;

(Y) AAT GGG TCC;

(Z) AAT GCT AGT;

(AA) AAT AAA TCT;

(BB) AAC ATG ACC;

(CC) AAT TAC ACA; and

(DD) AAC ATA ACA.

~~35~~ 33. A DNA sequence as claimed in claim ~~34~~ 32, wherein the DNA contains not more than about 600 nucleotides.

~~36~~ 34. A DNA sequence as claimed in claim ~~34~~ 32, wherein the DNA contains less than about 450 nucleotides.

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35 37. A DNA sequence as claimed in claim 30 32, wherein the DNA has a sequence selected from the group consisting of:

(a)

```
      6100         6110         6120         6130         6140
    GAATGC  TACTAATACC  AATAGTAGTA  ATACCAATAG  TAGTAGCGGG

      6150         6160         6170         6180         6190
GAAATGATGA  TGGAGAAAGG  AGAGATAAAA  AACTGCTCTT  TCAATATCAG

      6200
CACAAGCATA;
```

(b)

```
      6260         6270         6280         6290         6300
         T  AATGATACTA  CCAGCTATAC  GTTGACAAGT  TGTAACACCT

      6310
CAGTCATTAC;
```

(c)

```
      6390         6400         6410         6420         6430
         A  ATAATAAGAC  GTTCAATGGA  ACAGGACCAT  GTACAAATGT

      6440
GAGCACAGTA;
```

(d)

```
      6490         6500         6510         6520         6530
    GTTGAA  TGGCAGTCTA  GCAGAAGAAG  AGGTAGTAAT  TAGATCTGCC

      6540         6550         6560         6570         6580
AATTTCACAG  ACAATGCTAA  AACCATAATA  GTACAGCTGA  ACCAATCTGT

      6590         6600         6610         6620
AGAAATTAAT  TGTACAAGAC  CCAACAACAA  TACAAGAAAA;
```

(e)

```
      6860         6870         6880         6890         6900
         T  AATTCAACAC  AACTGTTTAA  TAGTACTTGG  TTTAATAGTA

      6910         6920         6930
CTTGGAGTAC  TGAAGGGTCA  AATAACACTG; and
```

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(f)

7540	7550	7560	7570	7580
GAATGC	TAGTTGGAGT	AATAAATCTC	TGGAACAGAT	TTGGAATAAC
7590	7600	7610	7620	7630
ATGACCTGGA	TGGAGTGGGA	CAGAGAAATT	AACAATTACA	CAAGCTTAAT.

~~36~~ 38. A DNA sequence as claimed in claim ~~30~~ 32, wherein the DNA has the sequence:

ATG AGA CTG AAG GAG AAA TAT CAG

CAC TTG TGG AGA TGG GGG TGG AAA.

~~37~~ 39. A DNA sequence as claimed in claim ~~30~~ 32, wherein the DNA has the sequence:

TCA GAT GCT AAA GCA TAT GAT ACA

GAG GTA CAT AAT GTT TGG GCC ACA.

~~38~~ 40. A DNA sequence as claimed in claim ~~30~~ 32, wherein the DNA has the sequence:

GTA CCC ACA GAC CCC AAC CCA CAA GAA.

~~39~~ 41. A DNA sequence as claimed in claim ~~30~~ 32, wherein the DNA has the sequence:

ACA GAA AAT TTT AAC ATG TGG AAA AAT GAC ATG GTA GAA CAG

ATG CAT GAG GAT ATA ATC AGT TTA ATC TGG CAA AGT CTA.

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42. A DNA sequence as claimed in claim 32, wherein the DNA has the sequence:

6050	6060	6070	6080	6090	6100
TA	AAATTAACC	CACTCTGTGT	TAGTTTAAAG	TGCACTGATT	TGGGGAATGC
	6110	6120	6130	6140	6150
	TACTAATACC	AATAGTAGTA	ATACCAATAG	TAGTAGCGGG	GAAATGATGA
	6160	6170	6180	6190	6200
	TGGAGAAAGG	AGAGATAAAA	AACTGCTCTT	TCAATATCAG	CACAAGCATA
	6210				
	AGAGGTAAGG	TGCAGAAA.			

43. A DNA sequence as claimed in claim 32, wherein the DNA has the sequence:

GAT AAT GAT ACT ACC.

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42 30
~~44~~. A DNA sequence as claimed in claim ~~32~~, wherein the DNA has the sequence:

```
      6390        6400        6410        6420        6430
CTAAAATGTA  ATAATAAGAC  GTTCAATGGA  ACAGGACCAT  GTACAAATGT

      6440        6450        6460        6470        6480
CAGCACAGTA  CAATGTACAC  ATGGAATTAG  GCCAGTAGTA  TCAACTCAAC

      6490        6500        6510        6520        6530
TGCTGTTGAA  TGGCAGTCTA  GCAGAAGAAG  AGGTAGTAAT  TAGATCTGCC

      6540        6550
AATTTCACAG  ACAATTGCTAA A.
```

43 30
~~45~~. A DNA sequence as claimed in claim ~~32~~, wherein the DNA has the sequence:

```
6570        6580        6590        6600        6610        6620
CTGA  ACCAATCTGT  AGAAATTAAT  TGTACAAGAC CCAACAACAA  TACAAGAAAA

            6630        6640        6650
      AGTATCCGTA  TCCAGAGGGG  ACCAGGGAGA.
```

44 30
~~46~~. A DNA sequence as claimed in claim ~~32~~, wherein the DNA has the sequence:

```
6670        6680        6690        6700        6710        6720
  AA  AATAGGAAAT  ATGAGACAAG  CACATTGTAA  CATTAGTAGA  GCAAAATGGA

          6730        6740        6750        6760        6770
    ATGCCACTTT  AAAACAGATA  GCTAGCAAAT  TAAGAGAACA  ATTTGGAAAT

          6780        6790        6800        6810
    AATAAAACAA  TAATCTTTAA  GCAATCCTCA  GGAGGGGACC  CA.
```

45 30
~~47~~. A DNA sequence as claimed in claim ~~32~~, wherein the DNA has the sequence:

```
6860        6870        6880        6890        6900        6910
 TGT  AATTCAACAC  AACTGTTTAA  TAGTACTTGG  TTTAATAGTA  CTTGGAGTAC

          6920        6930        6940
     TGAAGGGTCA  AATAACACTG  AAGGAAGTGA C.
```

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48. A DNA sequence as claimed in claim 32, wherein the DNA has the sequence:

```
      7070        7080        7090        7100        7110
    TTAACA  AGAGATGGTG  GTAATAACAA  CAATGGGTCC  GAGATCTTCA

      7120        7130        7140        7150        7160
GACCTGGAGG  AGGAGATATG  AGGGACAATT  GGAGAAGTGA  ATTATATAAA

TATAAAGTA.
```

49. A DNA sequence as claimed in claim 32, wherein the DNA has the sequence:

```
      7200        7210        7220        7230
      CCCA  CCAAGGCAAA  GAGAAGAGTG  GTGCAGAGAG  AAAAAAGA.
```

50. A DNA sequence as claimed in claim 32, wherein the DNA has the sequence:

```
      7320        7330        7340        7350        7360
         G  TACAGGCCAG  ACAATTATTG  TCTGGTATAG  TGCAGCAGCA

      7370        7380        7390        7400
GAACAATTTG  CTGAGGGCTA  TTGAGGCGCA  ACAGCATCTG.
```

51. A DNA sequence as claimed in claim 32, wherein the DNA has the sequence:

```
      7450        7460        7470
        GC  TGTGGAAAGA  TACCTAAAGG  ATCAACAG.
```

52. A DNA sequence as claimed in claim 32, wherein the DNA has the sequence:

```
      7530        7540        7550
         C  CTTGGAATGC  TAGTTGGAGT AATAAATCT.
```

53. A DNA sequence as claimed in claim 32, wherein the DNA has the sequence:

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7640 7650 7660 7670 7680
TTA ATTGAAGAAT CGCAAAACCA GCAAGAAAAG AATGAACAAG

7690 7700
AATTATTGGA ATTAGATAAA TGGGCA.

52 30
54. A DNA sequence as claimed in claim 32, wherein the DNA has the sequence:

7830 7840 7850 7860 7870
AGAGTTA GGCAGGGATA TTCACCATTA TCGTTTCAGA CCCACCTCCC

7880 7890 7900 7910 7920
AACCCCGAGG GGACCCGACA GGCCCGAAGG AATAGAAGAA GAAGGTGGAG

7930 7940
AGAGAGACAG AGACAGATCC ATT.

53 30
55. A DNA sequence as claimed in claim 32, wherein the DNA has the sequence:

8010 8020 8030 8040 8050
CTAC CACCGCTTGA GAGACTTACT CTTGATTGTA ACGAGGATTG

8060 8070
TGGAACTTCT GGGACGCAGG GGGTGGGA.

54
56. A cloned DNA sequence of Human Immunodeficiency Virus Type 1 (HIV-1) coding for a peptide having a relative molecular weight greater than 91,000 daltons, wherein the DNA is free of particles of said virus.

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55 ~~57~~. A DNA sequence as claimed in claim 54 ~~56~~, wherein the DNA contains at least one of the following nucleotide sequences:

(A) AAT GTG ACA;

(B) AAT GCT ACT;

(C) AAT AGT AGT;

(D) AAC TGC TCT;

(E) AAT ATC AGC;

(F) AAT GAT ACT;

(G) AAC ACC TCA;

(H) AAT AAG ACG;

(I) AAT GGA ACA;

(J) AAT GTC AGC;

(K) AAT GGC AGT;

(L) AAT TTC ACA;

(M) AAC CAA TCT;

(N) AAT TGT ACA;

(O) AAC AAT ACA;

(P) AAC ATT AGT;

(Q) AAT GCC ACT;

(R) AAT AAA ACA;

(S) AAT TCA ACA;

(T) AAT AGT ACT;

(U) AAT AGT ACT;

(V) AAT AGT ACT;

(W) AAT AAC ACT;

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